NPIC/TSG/RED/SDB-045-70
1 October 1970

MEMORANDUM TO: Chief, Engineering Support Division

25X1 ATTENTION : [redacted]

THROUGH : Deputy Chief, Research and Engineering Division

25X1 SUBJECT : Evaluation of [redacted] Filar Eyepiece for HPSV

1. The referenced report is generally good, but questions have arisen about a few specific points.

a. On page 1 in the Abstract and page 5 in the Recommendation, you recommend that the optics be modified to reduce optical distortions. If by this you mean curvature of field, it should be noted that the Filar Eyepiece was designed to mate the [redacted] 3X and 6X objectives (which have a relatively flat field). The curvature of field noted while using the 1.3X objective is due mainly to the objective. [redacted] has commented that they built the 1.3X objective with commercially available lenses and that they warned NPIC that this lens would exhibit some curvature of field, but it would be far less expensive to build the 1.3X with those lenses rather than special lenses. With the wide field of view of the 7X Filar Eyepiece, this curvature becomes rather evident. If the Filar Eyepiece was built to compensate for the 1.3X objective, if this is possible, it would display distortions with the other objectives. A better plan might be to redo the 1.3X objective lens if the operating components feel it is justified.

25X1

25X1

b. On page 3 in the second paragraph, you mention that the Filar Eyepiece can be used to make Q, Z, shadow, azimuthal, and horizontal measurements. Although you are technically correct, I think this overstates the capabilities of the Filar. The additional references, information, and calculations needed to make Q, Z, and azimuthal measurements would almost preclude the use of a Filar Eyepiece.

c. On page 11, the focus requirement is admittedly ambiguous. I interpret this to mean that at any place in the zoom range of the HPSV, the Filar Eyepiece reticle will not have to be refocused. The refocusing required at the stage to keep the image in focus is a

25X1 SUBJECT: Evaluation of [redacted] Filar Eyepiece for HPSV

function of the HPSV. I cannot explain the differences you have found, but I believe that they are generally random differences which will vary from HPSV to HPSV.

2. I recommend that your recommendations be modified to point out the sources of optical distortions, that the second paragraph on page 3 be slightly changed to reflect common uses of the Filar, and that the section on focus be either eliminated or completely explained.

[redacted] 25X1

Distribution:
Original - Addressee
2 - NPIC/TSG/RED/SDB

25X1 NPIC/TSG/RED/SDB/[redacted]